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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
SUKHAPHADHANA, CHRISTOPHER T	
ART UNIT	**PAPER NUMBER**
2625	3

DATE MAILED: 11/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/770,893	RIJAVEC ET AL.	
	Examiner	Art Unit	
	Christopher T. Sukhaphadhana	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-62 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-62 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 26 January 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Preliminary Matters

1. Examiner wishes to point out paragraph formatting errors in the specification, e.g. page 11, line 11 and page 13, line 2. Since these errors do not hinder the readability or affect the interpretation of the specification, no objections will be placed. Any efforts to correct these and any similar formatting errors are at the discretion of the Applicant.

Claim Objections

2. **Claims 38** are objected to because of the following informalities: In regards to claim 38, there appears to be an extraneous phrase "further comprising" at the end of the claim. Examiner believes this phrase is derived from similar wording in claim 18, and for the purpose of applying prior art, will ignore it. Examiner recommends removal of this extraneous phrase. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claims 1-62** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. In regards to **claim 1**, the expression "whose decoded output comprises" on line 4 of the claim is indefinite. Does "whose" refer back to the "at least one pointer" or to the "compressed data stream"? Who has the claimed decoded output?

6. Furthermore, **claim 1** recites the limitation "the pointer in one reentry data set" in line 7 of the claim. There is insufficient antecedent basis for this limitation in the claim.

7. In regards to **claims 22 and 42**, similar rejections as presented regarding claim 1 can be applied.

8. **Claim 40** recites the limitation "The method of claim 32" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim. Consider replacing "method" with --system--.

9. **Claim 41** recites the limitation "the computer readable medium" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim. Examiner believes the claim was intended to be directed towards "The system of claim 22" based on the overall claim tree structure.

10. **Claims 2-21, 23-39, 43-62** contain indefinite material at least by dependency on one of the rejected indefinite claims above.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. As best interpreted in light of the 35 USC 112, second paragraph, rejections, **claims 1-2, 5-9, 11-13, 21-23, 26-30, 32-34, 41-43, 46-50, 52-54, and 62**, are rejected under 35 U.S.C. 102(e) as being anticipated by Epstein et al (U.S. Patent 6,381,371 B1, newly cited, "Epstein").

13. In regards to **claim 1**, Epstein discloses a method for decompressing a compressed data stream (Fig 1) whose decoded output comprises lines of two-dimensional data (ref no 14, Fig 1), comprising: receiving a compressed data stream (ref no 8, Fig 1); receiving at least one pointer (col 8, lines 1-13) to a location in the compressed data stream whose decoded output comprises a location on a line of data; receiving decoding information for each received pointer (col 7, lines 21-34) that enables decoding from a point within the compressed data stream addressed by the pointer in one reentry data set; for each received pointer, performing: accessing the location (col 8, lines 1-13) in the compressed data stream addressed by the received pointer; and using the received decoding information (col 7, lines 21-34) to decode compressed data from the accessed location.

14. In regards to **claim 2**, Epstein further discloses in col 4, lines 42-53, the decoded output comprising image data.

15. In regards to **claim 5**, Epstein further discloses in col 7, lines 35-40 (ref 225), the received pointer and decoding information are included in a reentry data set.

16. In regards to **claim 6**, Epstein further discloses the method further comprising: generating the reentry data sets (col 5, lines 1-11) when decoding an input compressed data stream; and

outputting (col 4, lines 42-53) an output compressed data stream that comprises the compressed data decoded using the reentry data sets.

17. In regards to **claim 7**, Epstein further discloses in col 8, lines 1-13, the input and output compressed data streams are identical.

18. In regards to **claim 8**, Epstein further discloses in col 7, lines 42-59, the input compressed data stream including more data than the output compressed data stream.

19. In regards to **claim 9**, Epstein further discloses in col 5, lines 1-11, the reentry data sets (prescan table 225) are generated by a reentry decoder (prescanner 210) that decodes the input compressed data stream and passes each reentry data set and the output compressed data stream to a decoder (decoder 220, col 8, lines 1-13) to decode the output compressed data stream using the reentry data sets.

20. In regards to **claim 11**, Epstein further discloses in col 7, lines 20-34, the method further comprising using previously decoded data (absolute coefficient values) to decode the compressed data stream.

21. In regards to **claim 12**, Epstein further discloses in col 7, lines 30-31, the previously decoded data used to decode the compressed data stream being included in the reentry data sets.

22. In regards to **claim 13**, Epstein further discloses in col 7, lines 28-29, the previously decoded data being generated when decoding the compressed data stream using the reentry data sets.

23. In regards to **claim 21**, Epstein further discloses in col 7, lines 41-67, the method further comprising: receiving multiple pointers to different sections of the compressed data stream and receiving decoding information for each received pointer; and sequentially decoding a portion of

each section of the compressed data stream beginning at the location in the compressed data stream addressed by one of the pointers using the decoding information for the pointer.

24. In regards to **claims 22-23, 26-30, 32-34, and 41**, all the elements set forth in these claims have been addressed in the arguments of claims 1-2, 5-9, 11-13, 21 respectively.

25. In regards to **claims 42-43, 46-50, 52-54, and 62**, all the elements set forth in these claims have been addressed in the arguments of claims 1-2, 5-9, 11-13, 21 respectively.

Claim Rejections - 35 USC § 103

26. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

27. As best interpreted in light of the 35 USC 112, second paragraph, rejections, **claims 3-4, 10, 24-25, 31, 44-45, and 51,** are rejected under 35 U.S.C. 103(a) as being unpatentable over Epstein et al (U.S. Patent 6,381,371 B1, cited above, "Epstein").

28. In regards to **claim 3**, Epstein further discloses in col 4, lines 42-53, outputting the decoded data.

Epstein does not expressly disclose the method further comprising: buffering the decoded data.

However, Epstein does teach in col 11, line 30, that the present invention significantly reduces (not eliminates) the amount of buffer memory required in a computer system.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate buffering the decoded data because buffering the data would better prepare the data for outputting to peripheral devices (monitor, printer, etc, see col 4, lines 42-53).

29. In regards to **claim 4**, Epstein does not expressly disclose the buffered decoded data generated comprising a data section having a line width that is less than a line width of the decoded input compressed data stream.

It would have been obvious to one of ordinary skill in the art at the time of the invention to have the buffered decoded data comprising a data section having a line width that is less than a line width of the decoded input compressed data stream because having smaller buffer sections allows for smaller buffers. Smaller buffers save on hardware costs.

30. In regards to **claim 10**, Epstein does not expressly disclose the reentry data sets being generated by an encoder when encoding the compressed data stream.

It would have been obvious to one of ordinary skill in the art at the time of the invention to generate the reentry data sets by an encoder when encoding the compressed data stream because it would save processing time and hardware at the decoding side.

31. In regards to **claims 24-25 and 31**, all the elements set forth in these claims have been addressed in the arguments of claims 3-4 and 10, respectively.

32. In regards to **claims 44-45 and 51**, all the elements set forth in these claims have been addressed in the arguments of claims 3-4 and 10, respectively.

33. As best interpreted in light of the 35 USC 112, second paragraph, rejections, **claims 14-20, 35-40, and 55-61** are rejected under 35 U.S.C. 103(a) as being unpatentable over Epstein et

al (U.S. Patent 6,381,371 B1, cited above, "Epstein") as applied to claim 1 above, in combination with Slattery et al (*The Qx-Coder*, IBM Journal of Research and Development, 1998, "Slattery").

34. In regards to **claim 14**, Epstein does not expressly disclose additional previously decoded data in the reentry data set being also used to decode the compressed data stream.

However, Epstein teaches the present invention compatible with arithmetic encoding/decoding schemes (col 5, lines 24-30). Epstein also teaches in col 7, lines 25-34, the usage of the prescanner 210 to calculate and store data (absolute coefficient value) used during selected image area decoding (col 8, lines 1-13) in order to remove dependency on previous sections in the compressed input bitstream (col 7, lines 30-32).

Slattery teaches the ABIC algorithm (section 1, paragraphs 3-4), which is a form of arithmetic coding that relies on the values of seven fixed, nearby pels to determine probability estimates for an expected symbol.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Slattery's ABIC algorithm with Epstein's method because Slattery's ABIC algorithm is available on a hardware-optimized Q-coder (Slattery, abstract) that can easily be adapted for use with Epstein's invention. The incorporation of the ABIC algorithm into Epstein's method would mean that the ABIC seven fixed, nearby pixels and the probability estimates determined from them would be stored in lieu of the JPEG absolute coefficient values of Epstein col 7, lines 25-34, in order to remove dependency on previous sections in the compressed input bitstream. These seven fixed, nearby pixels and the probability estimates determined from them would then read on the additional previously decoded data in the reentry data set also used to decode the compressed data stream of this claim.

35. In regards to **claims 15-16**, Epstein does not expressly disclose the decoding information including probability estimates used to decode the compressed data stream at the location addressed by the pointer, nor the data being decoded using an ABIC algorithm.

However, Epstein teaches the present invention compatible with arithmetic encoding/decoding schemes (col 5, lines 24-30). Epstein also teaches in col 7, lines 25-34, the usage of the prescanner 210 to calculate and store data (absolute coefficient value) used during selected image area decoding (col 8, lines 1-13) in order to remove dependency on previous sections in the compressed input bitstream (col 7, lines 30-32).

Slattery teaches the ABIC algorithm (section 1, paragraphs 3-4), which is a form of arithmetic coding that relies on the values of seven fixed, nearby pels to determine probability estimates for an expected symbol.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Slattery's ABIC algorithm with Epstein's method because Slattery's ABIC algorithm is available on a hardware-optimized Q-coder (Slattery, abstract) that can easily be adapted for use with Epstein's invention. The incorporation of the ABIC algorithm into Epstein's method would mean that the ABIC seven fixed, nearby pixels and the probability estimates determined from them would be stored in lieu of the JPEG absolute coefficient values of Epstein col 7, lines 25-34, in order to remove dependency on previous sections in the compressed input bitstream.

36. In regards to **claim 17**, Epstein further discloses the decoding beginning from the location in the compressed data stream addressed by the pointer in a first reentry data set (col 6, lines 1-12).

Epstein does not expressly disclose the first reentry data set further including all the previously decoded data needed to decode from the pointer in the first reentry data set to generate as output a first line of data.

However, Epstein teaches the present invention compatible with arithmetic encoding/decoding schemes (col 5, lines 24-30). Epstein also teaches in col 7, lines 25-34, the usage of the prescanner 210 to calculate and store data (absolute coefficient value) used during selected image area decoding (col 8, lines 1-13) in order to remove dependency on previous sections in the compressed input bitstream (col 7, lines 30-32).

Slattery teaches the ABIC algorithm (section 1, paragraphs 3-4), which is a form of arithmetic coding that relies on the values of seven fixed, nearby pels to determine probability estimates for an expected symbol.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Slattery's ABIC algorithm with Epstein's method because Slattery's ABIC algorithm is available on a hardware-optimized Q-coder (Slattery, abstract) that can easily be adapted for use with Epstein's invention. The incorporation of the ABIC algorithm into Epstein's method would mean that the ABIC seven fixed, nearby pixels and the probability estimates determined from them would be stored in lieu of the JPEG absolute coefficient values of Epstein col 7, lines 25-34, in order to remove dependency on previous sections in the compressed input bitstream. These seven fixed, nearby pixels and the probability estimates determined from them include all the previously decoded data needed to decode from the pointer in the first reentry data set to generate as output a first line of data.

37. In regards to **claim 18**, Epstein further discloses in col 7, lines 41-67, for each reentry data set following a first reentry data set, further comprising using previously decoded data generated using another reentry data set.

38. In regards to **claim 19**, Epstein further discloses in col 7, lines 41-67, each reentry data set following the first reentry data set further including previously decoded data to use when decoding from the location in the compressed data stream addressed by the pointer in the reentry data set.

39. In regards to **claim 20**, Epstein does not expressly disclose the previously decoded data used to decode the compressed data stream comprising a set of nearest neighbor bit values to the bit value generated by decoding the location in the compressed data stream addressed by the pointer.

However, Epstein teaches the present invention compatible with arithmetic encoding/decoding schemes (col 5, lines 24-30). Epstein also teaches in col 7, lines 25-34, the usage of the prescanner 210 to calculate and store data (absolute coefficient value) used during selected image area decoding (col 8, lines 1-13) in order to remove dependency on previous sections in the compressed input bitstream (col 7, lines 30-32).

Slattery teaches the ABIC algorithm (section 1, paragraphs 3-4), which is a form of arithmetic coding that relies on the values of seven fixed, nearby pels to determine probability estimates for an expected symbol.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Slattery's ABIC algorithm with Epstein's method because Slattery's ABIC algorithm is available on a hardware-optimized Q-coder (Slattery, abstract) that can easily be adapted for

use with Epstein's invention. The incorporation of the ABIC algorithm into Epstein's method would mean that the ABIC seven fixed, nearby pixels and the probability estimates determined from them would be stored in lieu of the JPEG absolute coefficient values of Epstein col 7, lines 25-34, in order to remove dependency on previous sections in the compressed input bitstream. These seven fixed, nearby pixels read on the set of nearest neighbor bit values as claimed.

40. In regards to **claims 35-36 and 37-40**, all the elements set forth in these claims have been addressed in the arguments of claims 14-15 and 17-20, respectively.

41. In regards to **claims 55-61**, all the elements set forth in this claim have been addressed in the argument of claims 14-20, respectively.

Conclusion

42. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher T. Sukhaphadhana whose telephone number is 703-306-4148. The examiner can normally be reached on 9a-4p M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh M. Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3800.

CTS

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